A teacher has a bag of sweets. If she gives 10 sweets to each of her pupils, there will be an excess of 8 sweets. If she gives 11 sweets to each of her pupils, she will need another 16 sweets. How many pupils does the teacher give the sweets to? How many sweets does she have?

Beginner Example 1

The leader of a group of monkeys was giving away some bananas to its followers. If it gave 5 bananas to each monkey, it needed another 2 bananas. If it gave each monkey 4 bananas, there were 3 bananas left. How many followers did the leader have? How many bananas did the leader have?

Beginner Example 2
At a tree-planting project, each volunteer is supposed to plant the same number of trees. If each volunteer plants 5 trees, there will be 3 trees left. If each volunteer plants 3 trees, there will be 9 trees left. How many trees are planted? How many volunteers are there?

Beginner Example 3

Tammy walks to school every morning. If she walks at a speed of 50 metres per minute, she will be late by 2 minutes. If she walks at 60 metres per minute, she will reach school 1 minute before the bell rings. How far is the school?

Junior 2 Example 4
A teacher has a bag of sweets. If she gives each student 3 sweets, she is left with 16 sweets. If she gives each student 5 sweets, she needs another 4 sweets. How many students are there? How many sweets does the teacher have?

Mr Miller buys a basket of apples for his family. If 4 apples are taken every day, 24 apples will be left after some days. If 6 apples are taken every day, the family needs another 8 apples for the same number of days. How many days can the basket of apples last? How many apples are there?
The students from Greenwood Primary are going for a holiday trip. If each bus takes 40 students, there will be 16 vacant seats. If each bus takes 36 students, 20 pupils will not get any seats.
How many buses are there?
How many students are going for the trip?

Junior 2 Example 3

A teacher has a bag of sweets for her students. If each student is given 3 sweets, the remaining number of sweets is 30. If each student is given 4 sweets, the remaining number of sweets is 4. How many students are there? How many sweets does the teacher have?

Beginner Example 1
An international school has a hostel. If 12 students stay in a room, 34 students will not have a room. If 14 students stay in a room, there will be 4 vacant beds. How many rooms are there in the hostel? How many students are staying in the hostel?

Beginner Example 2

Michelle walks to school every morning. If she walks at a speed of 60 metres per minute, she will be late for 5 minutes. If she speeds up to 75 metres per minute, she will reach the school 2 minutes before the bell rings. How far is the school from her house?

Beginner Example 3
A group of workers is paving a new road. It will take them 6 more days to pave the road if they pave 120 metres per day. If they can pave 160 metres per day, they are able to complete the work 4 days in advance. How many days are scheduled for the work at first? How long is the road?

Beginner Example 5

The teachers are taking their students for a riverboat excursion. If each boat can take 8 students, 6 students will not be able to go for the excursion. If each boat can take 10 students, there is still room for 8 more students. How many boats are there? How many students are there?

Junior 2 Question 1
A teacher has a bag of sweets. If she gives each student 10 sweets, she is left with 24 sweets. If she gives each student 12 sweets, she needs another 14 sweets.

How many students does the teacher give the sweets to?
How many sweets does the teacher have?

Junior 2 Question 2

During a new school term, one of the Primary 3 classes will have only 20 students if the principal puts 35 Primary 3 students to a class. If she puts 30 students in a class, 15 students will not have a classroom. How many Primary 3 classes are there supposed to be? How many Primary 3 students are there in the school?

Junior 2 Question 3
If each volunteer in a tree-planting project plants 4 trees, 5 trees will be left. If each of them plants 7 trees, one volunteer will have nothing to plant.
How many volunteers are there in the tree-planting project?
How many trees do they plant?

Junior 2 Question 4

Alvin has some marbles to give away. If he gives each of his friends 10 marbles, he will be left with 8 marbles. If he gives each friend 14 marbles, he is short of 12 marbles.
How many friends does Alvin give his marbles to?
How many marbles does he have?

Junior 2 Question 5
Mrs Rice buys a basket of oranges. If each family member has 4 oranges, she will be left with 8 oranges. If each family member has 6 oranges instead, one of them will not receive anything.
How big is Mrs Rice’s family?
How many oranges does she buy?

Junior 2 Question 6

Jimmy walks to his school every morning. If he walks at 40 metres per minute, he will reach his school 5 minutes later. If he walks at 60 metres per minute, he will reach his school 3 minutes before the bell rings.
How far is the school from Jimmy’s house?

Junior 2 Question 7
Junior 2 Question 8

A teacher asks the class to finish reading a storybook within a number of days. If Vanessa reads 30 pages a day, she will finish reading 2 days later than the given days. If she reads 39 pages a day, she will finish reading 4 days ahead of the deadline.
In how many days are the students supposed to finish reading the storybook?
How many pages has the storybook?

Beginner Question 1

A teacher has a bag of sweets. If she gives each pupil 8 sweets, she will be left with 8 sweets. If she gives each pupil 10 sweets, she needs 4 more sweets. How many pupils does the teacher give the sweets to? How many sweets does she have?
A carton of oranges is to be shared among some family members. If each family member gets 5 oranges, there will be 3 oranges left in the carton. If every family member gets 7 oranges, there is a shortage of 7 oranges. How many members are there in this family? How many oranges are there in this carton?

Beginner Question 2

Mr Nelson is changing the water in his fish tank. If he uses a 5-litre pail, 4 litres of water will overflow. If he uses a 3-litre pail, he needs another 4 more pails of water. How many litres of water are needed to fill the fish tank?

Beginner Question 3
Greenville Primary School is organising a field trip for the pupils. If the seating capacity of each bus is 35 pupils, 5 pupils will not be able to board the bus. If the seating capacity of each bus is 40 pupils, there will be an extra empty bus. How many buses are needed for the field trip? How many pupils are going for the field trip?

Beginner Question 4

A comic costs $3 and a mystery series costs $5 each. If Ken spends all his money on the comics, he has $6 left. If he wants to buy the mystery series, he needs another $8. How many comics or mystery books is Ken buying? How much money does he have?

Beginner Question 5
A teacher is taking some pupils for a riverboat excursion. If each boat can take only 3 pupils, 16 pupils will not get onto the boat. If each boat can take only 5 pupils, 2 pupils will not get onto the boat. How many boats are there? How many pupils are there?

Beginner Question 6

Mrs Bunny was giving away some carrots to her children. If each rabbit received 3 carrots, there would be an excess of 7 carrots. If each rabbit was given 4 carrots, there would be only 2 carrots left. How many children did Mrs Bunny give the carrots to? How many carrots did she have?

Beginner Question 7
If 6 students are sharing a hostel room in an international school, there will be 2 empty rooms. If 4 students are sharing a hostel room instead, there will be a shortage of 3 rooms. How many students want to stay in the hostel? How many hostel rooms does the international school have?

Beginner Question 8

Miss Atkinson stayed back in school to do some marking. If she had marked 4 questions in a minute, she would leave the school 5 minutes late. If she had marked 6 questions in a minute, she would leave the school 5 minutes early. How many questions did she mark before she left the school?

Beginner Question 9
Jodi walks to school every morning. If she walks at a speed of 50 metres per minute, she will be 4 minutes late for school. If she walks at a speed of 65 metres per minute, she will reach her school 2 minutes before the assembly bell rings. How long does Jodi take to walk to school in order to be on time? How far is the school from her house?

Beginner Question 10

A basket of apples is to be given out. If everyone gets 3 apples, there is an excess of 16 apples. If everyone gets 5 apples, the giver will be short of 4 apples. How many people are sharing the basket of apples? How many apples are in the basket?

Intermediate Question 1
The students from Ridgewood Primary School are going for a field trip. If each bus takes 35 students, 15 students will not get to board the bus. If each bus takes 5 more students, there will be one empty bus. How many buses does the school need to hire? How many students are going for the field trip?

Intermediate Question 2

A teacher has a bag of sweets to be distributed among her students. If each student gets 10 sweets, there is no sweets left. If each student gets 16 sweets, the teacher needs another 48 sweets. How many students are there? How many sweets does the teacher have?

Intermediate Question 3
If 5 students stays in a room of a youth hostel, 14 students will not have a room. If 7 students stay in a room, there will be 4 vacant beds. How many rooms does the youth hostel have? How many students are staying in the youth hostel?

Intermediate Question 4

A car is travelling from Town A to Town B. If it travels at a speed of 45 km/h, it will be late by an hour. If it travels at a speed of 55 km/h, it arrives one hour before the scheduled time. How far is Town B from Town A?

Intermediate Question 5
The students from Greensville Primary School are going for a field trip. If each bus takes 45 students, 10 students will not get to board the bus. If each bus takes 50 students, there will be an extra bus. How many buses is the school hiring? How many students are going for the field trip?

Intermediate Question 6

A teacher stays back in school to mark the test papers. If she marks 10 questions every 5 minutes, she will be going home 20 minutes later. If she marks 14 questions every 5 minutes, she will be able to go home 10 minutes earlier. How many questions does she have to mark?

Intermediate Question 7
David walks to a shopping mall to meet his friend. If he walks at a speed of 30 metres per minute, he will be late for 4 minutes. If he speeds up to 40 metres per minute instead, he will reach the shopping mall 3 minutes before the appointment time. How far is the shopping mall from his place?

Intermediate Question 9

If each gift box in a store is sold at $80, the owner will make a profit of $2700. If each gift box is sold at $40 instead, he will make a loss of $900. How many gift boxes are there? What is the cost price of each gift box?

Intermediate Question 10
A group of construction workers is paving a new road. If they pave 200 metres per day, they will be able to finish 6 days ahead of schedule. If they pave 160 metres per day, the work will be delayed by 4 days. How long is the new road?

Intermediate Question 11

Every morning, Alice walks to school. If she walks at a speed of 60 metres per minute, she will be 4 minutes late. If she walks at a speed of 80 metres per minute, she will reach the school just 4 minutes before the bell rings. How far away is the school from Alice’s house?

Beginner (Lesson 9) Question 19
Every morning, Alice walks to school. If she walks at a speed of 60 metres per minute, she will be 4 minutes late. If she walks at a speed of 80 metres per minute, she will reach the school just 4 minutes before the bell rings. How far away is the school from Alice’s house?
Solution for Beginner Example 1

excess of sweets = 8
shortage of sweets = 16
difference in the number of sweets = 11 - 10 = 1

Apply formula 1 to find the number of pupils.
(excess + shortage) ÷ difference = number of items
(8 + 16) ÷ 1 = 24

The teacher gives the sweets to 24 pupils.

Apply formulae 3 or 4 to find the number of sweets.
total = number of items × equal share for each item + excess
= 24 × 10 + 8 = 248

OR

total = number of items × equal share for each item - shortage
= 24 × 11 - 16 = 248

She has 248 sweets.

Solution for Beginner Example 2

excess of bananas = 3
shortage of bananas = 2
difference in the number of bananas = 5 - 4 = 1

Apply formula 1 to find the number of pupils.
(excess + shortage) ÷ difference = number of items
(3 + 2) ÷ 1 = 5

The leader had 5 followers.

Apply formulae 3 or 4 to find the number of bananas.
total = number of items × equal share for each item + excess
= 5 × 4 + 3 = 23

OR

total = number of items × equal share for each item - shortage
= 5 × 5 - 2 = 23

The leader had 23 bananas.
Solution for Beginner Example 3

excess of trees = 3
excess of trees = 9
difference in the number of trees = 5 - 3 = 2

Apply formula 2 to find the number of volunteers.
(excess - excess) ÷ difference = number of items
(9 - 3) ÷ 2 = 3

There are 3 volunteers.

Apply formula 3 to find the number of trees.
total = number of items x equal share for each item + excess
= 3 x 5 + 3 = 18

OR

= 3 x 3 + 9 = 18

18 trees are planted.

Solution for Junior 2 Example 4

If she walks at 50 m per min,
50 x[2]= 100
she will be 100 m away from the school.

If she walks at 60 m per min,
60 x[3]= 60
she will be 60 m pass the school.

excess + shortage = 60 m + 100 m
= 160 m

Difference in speed = 60 - 50
= 10 m every min

160 ÷ 10 = 16 min
She needs to walk for 16 min.

50 x 16 + 100 = 900 m
or
60 x 16 - 60 = 900 m

The school is 900 m away.
Solution for Junior 2 Example 1

If each student receives 3 sweets, 16 sweets are left.
If each student receives 5 sweets, the teacher will be short of 4 sweets.

\[
\text{excess + shortage} = 16 + 4 = 20
\]

The difference in the number of sweets given is

\[
\frac{5 - 3}{2} = 2
\]

There are 10 students.

\[
10 \times 3 + 16 = 30 + 16 = 46
\]

or

\[
10 \times 5 - 4 = 50 - 4 = 46
\]

The teacher has 46 sweets.

Solution for Junior 2 Example 2

If 4 apples are eaten every day, 24 apples are left.
If 6 apples are eaten every day, 8 apples are short of.

\[
\text{excess + shortage} = 24 + 8 = 32
\]

The difference in the number of apples eaten is

\[
\frac{6 - 4}{2} = 2
\]

32 ÷ 2 = 16

The basket of apples can last 16 days.

\[
16 \times 4 + 24 = 64 + 24 = 88
\]

or

\[
16 \times 6 - 8 = 96 - 8 = 88
\]

There are 88 apples.
Solution for Junior 2 Example 3

If there are 40 students in a bus, 16 seats are left. If there are 36 students in a bus, there is a short of 20 seats.

\[
\text{excess + shortage} = 16 + 20 = 36
\]

The difference in the number of students is \(40 - 36 = 4\)

\[
36 \div 4 = 9
\]

There are 9 buses.

\[
9 \times 40 - 16 = 360 - 16 = 344
\]

or

\[
9 \times 36 + 20 = 324 + 20 = 344
\]

344 students are going for the trip.

Solution for Beginner Example 1

In the first scenario, the excess is 30 sweets.
In the second scenario, the excess is 4 sweets.

\[
\text{difference of sweets given to each student} = 4 - 3 = 1
\]

\[
(30 - 4) + 1 = 26 \div 1 = 26
\]

There are 26 students.

\[
26 \times 3 + 30 = 108 \quad \text{or} \quad 26 \times 4 + 4 = 108
\]

The teacher has 108 sweets.

Solution for Beginner Example 2

\[
\text{excess} = 34 \text{ students}
\]

\[
\text{shortage} = 4 \text{ students}
\]

\[
34 + 4 = 38
\]

\[
\text{difference of students in a room} = 14 - 12 = 2
\]

\[
38 \div 2 = 19
\]

There are 19 rooms in the hostel.

\[
19 \times 12 + 34 = 262
\]

or

\[
19 \times 14 - 4 = 262
\]

262 students are staying in the hostel.
Solution for Beginner Example 3

At the speed of 60 m/min, she is \(60 \times 5 = 300\) m away when the bell rings.

At the speed of 75 m/min, she can continue to walk for \(75 \times 2 = 150\) m before the bell rings.

\[
\begin{align*}
300 + 150 &= 450 \text{ m} \\
75 - 60 &= 15 \text{ m/min} \\
450 \div 15 &= 30 \text{ min}
\end{align*}
\]

\(30 \times 60 + 300 = 2100\) m or \(30 \times 75 - 150 = 2100\) m

The school is 2100 m away from her house.

Solution for Beginner Example 5

shortage \(= 120 \times 6 = 720\) m
excess \(= 160 \times 4 = 640\) m

\[
\begin{align*}
720 + 640 &= 1360 \text{ m} \\
160 - 120 &= 40 \\
1360 \div 40 &= 34
\end{align*}
\]

34 days are scheduled for the work at first.

\[
(34 \times 120) + (6 \times 120) = 4800 \text{ m}
\]

or

\[
(34 \times 160) - (4 \times 160) = 4800 \text{ m}
\]

The road is 4800 m long.
Solution for Junior 2 Question 1

Excess + shortage = 8 + 6 = 14
Difference in capacity = 10 - 8 = 2
14 ÷ 2 = 7
There are 7 boats.
7 x 8 ÷ 6 = 56 ÷ 6
= 82
or
7 x 10 - 8 = 70 - 8
= 62
There are 62 students.

Solution for Junior 2 Question 2

Excess + shortage = 24 + 14 = 38
Difference = 12 - 10 = 2
38 ÷ 2 = 19
The teacher gives the sweets to 19 students.
19 x 10 + 24 = 190 + 24
= 214
or
19 x 12 - 14 = 228 - 14
= 214
The teacher has 214 sweets.

Solution for Junior 2 Question 3

Shortage = 35 - 20 = 15 students
Excess = 15 students
15 + 15 = 30 students
Difference = 35 - 30
= 5 students
30 ÷ 5 = 6 classes
There are supposed 6 Primary 3 classes.
6 x 35 - 15 = 195 students
or
6 x 30 + 15 = 195 students
There are 195 Primary 3 students.
Solution for Junior 2 Question 4

\[ \text{excess + shortage} = 5 + 7 = 12 \]
\[ \text{Difference of trees planted} = 7 - 4 = 3 \]
\[ 12 \div 3 = 4 \]
There are 4 volunteers in the tree-planting project.
\[ 4 \times 4 + 5 = 21 \]
or
\[ 4 \times 7 - 7 = 21 \]
They plant 21 trees.

Solution for Junior 2 Question 5

\[ \text{excess + shortage} = 8 + 12 = 20 \]
\[ \text{Difference} = 14 - 10 = 4 \]
\[ 20 \div 4 = 5 \]
Alvin gives his marbles to 5 friends.
\[ 5 \times 10 + 8 = 58 \]
or
\[ 5 \times 14 - 12 = 58 \]
He has 58 marbles.

Solution for Junior 2 Question 6

\[ \text{excess + shortage} = 8 + 6 = 14 \]
\[ \text{Difference} = 6 - 4 = 2 \]
\[ 14 \div 2 = 7 \]
Mrs Rice's family consists of 7 members.
\[ 7 \times 4 + 8 = 36 \]
or
\[ 7 \times 6 - 6 = 36 \]
She buys 36 oranges.
Solution for Junior 2 Question 7

shortage = 40 m × 5 = 200 m
excess = 60 m × 3 = 180 m
200 m + 180 m = 380 m
Difference in speed = 60 - 40
= 20 m per min
380 ÷ 20 = 19
He needs walk 19 min to his school.
19 × 40 + 200 = 960 m
or
19 × 60 - 180 = 960 m
The school is 960 m from Jimmy's house.

Solution for Junior 2 Question 8

shortage = 2 × 30 = 60
excess = 30 × 4 = 156
60 + 156 = 216 pages
Difference = 39 - 30 = 9
216 ÷ 9 = 24
The students are supposed to finish reading the storybook in 24 days.
24 × 30 + 60 = 780
or
24 × 39 - 156 = 780
The storybook has 780 pages.

Solution for Beginner Question 1

excess of sweets = 8
shortage of sweets = 4

Difference of sweets each pupil gets
= 10 - 8 = 2
(8 + 4) ÷ 2 = 12 ÷ 2 = 6
The teacher gives the sweets to 6 pupils.
6 × 8 + 8 = 56
or 6 × 10 - 4 = 56
She has 56 sweets.
Solution for Beginner Question 2

excess of oranges = 3
shortage of oranges = 7

Difference of oranges each family member gets = $7 - 5 = 2$

$(3 + 7) \div 2 = 10 \div 2 = 5$

There are 5 members in this family.

$5 \times 5 + 3 = 28$ or $5 \times 7 - 7 = 28$

There are 28 oranges in this carton.

Solution for Beginner Question 3

excess of water = 4 litre
shortage of water = $3 \times 4 - 12$ litre

Difference between the capacity of the two pails = $5 \times 3\text{ litre} - 3\text{ litre} = 2\text{ litre}$

$(4 + 12) \div 2 = 8$

He needs 8 such pails.

$8 \times 5 \text{ litre} - 4 \text{ litre} = 36\text{ litre}$ or $8 \times 3 \text{ litre} + 12 \text{ litre} = 36\text{ litre}$

36 litre of water are needed to fill the fish tank.

Solution for Beginner Question 4

excess of pupils = 5
shortage of pupils = 40

Difference between the seating capacity of the two buses = $40 - 35 = 5$

$(5 + 40) \div 5 = 45 \div 5 = 9$

9 buses are needed for the field trip.

$9 \times 35 + 5 = 320$ or $9 \times 40 - 40 = 320$

320 pupils are going for the field trip.
Solution for Beginner Question 5

excess of money = $6
shortage of money = $8

Difference between the cost of a comic and a mystery book = $5 - $3 = $2

($6 + $9) ÷ $2 = $14 ÷ $2 = 7

Ken is buying 7 comics or mystery books.

7 × $3 + $6 = $27 or 7 × $5 + $8 = $27

He has $27.

Solution for Beginner Question 6

excess of pupils = 16
excess of pupils = 2

Difference of pupils on each boat = 5 - 3 = 2

(16 - 2) ÷ 2 = 14 ÷ 2 = 7

There are 7 boats.

7 × 3 + 16 = 37 or 7 × 5 + 2 = 37

There are 37 pupils.

Solution for Beginner Question 7

excess of carrots = 7
excess of carrots = 2

Difference of carrots each rabbit would receive = 4 - 3 = 1

(7 - 2) ÷ 1 = 5

Mrs Bunny gave the carrots to 5 rabbits.

5 × 3 + 7 = 22 or 5 × 4 + 2 = 22

She had 22 carrots.
Solution for Beginner Question 8

shortage of students = 2 \times 6 = \boxed{12}  
excess of students = 3 \times 4 = \boxed{12}

Difference of students in each hostel room = 6 - 4 = 2

\((12 + 12) \div 2 = 12\)
The international school has \boxed{12} hostel rooms.

\(12 \times 6 - 12 = 60\) or \(12 \times 4 + 12 = 60\)

\boxed{50} students want to stay in the hostel.

Solution for Beginner Question 9

excess of questions to be marked = 5 \times 4 = \boxed{20}  
shortage of questions to be marked = 5 \times 6 = \boxed{30}

Difference between the number of questions she marked in a minute = 6 - 4 = 2

\((20 + 30) \div 2 = 25\)
The time she used for marking was \boxed{25} minutes.

\(25 \text{ min} \times 4 + 20 = 120\) or \(25 \text{ min} \times 6 - 30 = 120\)

She marked \boxed{120} questions before she left the school.

Solution for Beginner Question 10

shortage = 50 \text{ m} \times 4 = \boxed{200}  
excess = 65 \text{ m} \times 2 = \boxed{130}

Difference between the two walking speed = 65 \text{ m/min} - 50 \text{ m/min} = 15 \text{ m/min}

\((200 \text{ m} + 130 \text{ m}) \div 15 \text{ m/min} = 22\)
Jodi takes 22 minutes to walk to school in order to be on time.

\(22 \text{ min} \times 50 \text{ m} + 200 \text{ m} = 1300 \text{ m}\) or \(22 \text{ min} \times 65 \text{ m} - 130 \text{ m} = 1300 \text{ m}\)

The school is \boxed{1300} m from her house.
Solution for Intermediate Question 1

excess = 16 apples
shortage = 4 apples

\[ 16 + 4 = 20 \text{ apples} \]
\[ 5 - 3 = 2 \]
\[ 20 \div 2 = 10 \]

10 people are sharing the basket of apples.

\( (10 \times 3) + 16 = 48 \)

or

\( (10 \times 5) - 4 = 46 \)

46 apples are in the basket.

Solution for Intermediate Question 2

excess = 15 students
shortage = 35 + 5 = 40 students
15 + 40 = 55 students
difference of students in each bus = 5

\[ 55 \div 5 = 11 \]

The school needs to hire 11 buses.

\( (11 \times 35) + 15 = 400 \)

or

\( (11 \times 40) - 40 = 400 \)

400 students are going for the field trip.

Solution for Intermediate Question 3

excess = 0 sweets
shortage = 48 sweets

\[ 0 + 48 = 48 \text{ sweets} \]

difference in sweets given to each student = 16 - 10 = 6

\[ 48 \div 6 = 8 \text{ students} \]

There are 8 students.

\( (8 \times 10) + 0 = 80 \)

or

\( (8 \times 16) - 48 = 80 \)

The teacher has 80 sweets.
Solution for Intermediate Question 4

excess = 14 students
shortage = 4 students

14 + 4 = 18 students
difference in the number of students in each room = 7 - 5 = 2

18 ÷ 2 = 9 rooms
The youth hostel has 9 rooms.

(9 × 5) + 14 = 59
or
(9 × 7) - 4 = 59

59 students are staying in the youth hostel.

Solution for Intermediate Question 5

excess = 55 × 1 = 55 km
shortage = 45 × 1 = 45 km

45 + 55 = 100 km
difference in speeds = 55 - 45 = 10 km/h

100 ÷ 10 = 10 h

(10 × 45) + 45 = 495 km
or
(10 × 55) - 55 = 495 km

Town B is 495 km apart from Town A.
Solution for Intermediate Question 6

excess = 10 students
shortage = 50 students

\[10 + 50 = 60 \text{ students}\]

difference in the number of students per bus = 50 - 45 = 5

\[60 \div 5 = 12 \text{ buses}\]

The school is hiring 12 buses.

\[(12 \times 45) + 10 = 550\]

or

\[(12 \times 50) - 50 = 550\]

550 students are going for the field trip.

Solution for Intermediate Question 7

\[\frac{20 \div 5 \times 10}{14 \div 5 \times 14}\]

\[\text{going home}\]

excess = 10 \div 5 \times 14 = 28 \text{ questions}

shortage = 20 \div 5 \times 10 = 40 \text{ questions}

\[40 + 28 = 68 \text{ questions}\]

difference in every 5 min = 14 - 10 = 4

\[68 \div 4 = 17\]

There are 17 sets of five minutes.

\[(17 \times 10) + 40 = 210\]

or

\[(17 \times 14) - 28 = 210\]

She has to mark 210 questions.
Solution for Intermediate Question 9

\[30 \times 4 = 120 \text{ m}\]
\[40 \times 3 = 120 \text{ m}\]

shopping mall

excess \(= 40 \text{ m} \times 3 \text{ min} = 120 \text{ m}\)

shortage \(= 30 \text{ m} \times 4 \text{ min} = 120 \text{ m}\)

\[120 \text{ m} + 120 \text{ m} = 240 \text{ m}\]

difference in speeds \(= 40 - 30 = 10 \text{ m/min}\)

\[240 \div 10 = 24 \text{ min}\]

\[(30 \times 24) + 120 = 840 \text{ m}\]

or

\[(40 \times 24) - 120 = 840 \text{ m}\]

The shopping mall is 840 m away from his place.

Solution for Intermediate Question 10

profit = $\text{2700}\)

loss = $\text{300}\)

\[2700 + 900 = 3600\]

difference in the selling price

\[= 1000 - 40 = 40\]

\[3600 \div 40 = 90\]

There are 90 gift boxes.

\[2700 \div 90 = 30 \text{ of profit per box}\]

\[80 - 30 = 50\]

The cost price of each gift box is $50.
**Solution for Intermediate Question 11**

excess = \(6 \times 200 \text{ m} = \boxed{1200 \text{ m}}\)
shortage = \(4 \times 160 \text{ m} = \boxed{640 \text{ m}}\)

\[1200 + 640 = 1840 \text{ m}\]
difference in length of the road paved each day = \(200 \text{ m} - 160 \text{ m} = 40 \text{ m}\)

\[1840 \div 40 = 46 \text{ days}\]

\((46 \times 200) - 1200 = 8000 \text{ m}\)
or

\((46 \times 160) + 640 = 8000 \text{ m}\)

The new road is \(8000 \text{ m}\) long.

**Solution for Beginner (Lesson 9) Question 19**

\(50 \text{ m/min} \times 5 \text{ min} = \boxed{250 \text{ m}}\)
John has to walk another \(250 \text{ m}\) when the bell rings.

\(70 \text{ m/s} \times 5 \text{ min} = \boxed{350 \text{ m}}\)
The distance John can continue to cover before the bell rings is \(350 \text{ m}\).

\(250 \text{ m} + 350 \text{ m} = 600 \text{ m}\)
The difference in the distance when John walks at \(50 \text{ m/min}\) and \(70 \text{ m/min}\) respectively is \(600 \text{ m}\).

\(70 \text{ m/min} - 50 \text{ m/min} = 20 \text{ m/min}\)

\(600 \text{ m} \div 20 \text{ m/min} = 30 \text{ min}\)
John takes \(30 \text{ min}\) to walk to school.

\(50 \text{ m/min} \times 30 \text{ min} = 1500 \text{ m}\)
\(1500 \text{ m} + 250 \text{ m} = 1750 \text{ m}\)

OR

\(70 \text{ m/min} \times 30 \text{ min} = 2100 \text{ m}\)
\(2100 \text{ m} - 350 \text{ m} = 1750 \text{ m}\)
The school is \(1750 \text{ m}\) away from John’s house.
Solution for Beginner (Lesson 9) Question 20

60 m/min × 4 min = 240 m
Alice has to walk another 240 m when the bell rings.

80 m/s × 4 min = 320 m
The distance Alice can continue to cover before the bell rings is 320 m.

240 m + 320 m = 560 m
The difference in the distance when Alice walks at 60 m/min and 80 m/min respectively is 560 m.

80 m/min − 60 m/min = 20 m/min
560 m ÷ 20 m/min = 28 min
Alice takes 28 min to walk to school.

60 m/min × 28 min = 1680 m
1680 m + 240 m = 1920 m

OR

80 m/min × 28 min = 2240 m
2240 m − 320 m = 1920 m
The school is 1920 m away from Alice’s house.